



Better Buildings Residential Network Peer Exchange Call Series: *Are You Ready? Opportunities and Challenges of Home Energy Management Systems*

May 11, 2017

Call Slides and Discussion Summary

Agenda

- Agenda Review and Ground Rules
- Opening Polls
- Brief Residential Network Overview and Upcoming Call Schedule
- Featured Speakers
 - **Claire Miziolek**, Market Strategies Program Manager, Northeast Energy Efficiency Partnerships (*Network Member*)
 - **Kari Binley**, Sr. Industry Relations Manager - Retail, Pacific Gas & Electric Company
 - **Kurt Roth**, Director, Building Energy Management, Fraunhofer Center for Sustainable Energy Systems
- Discussion
 - Is your program currently using or considering Home Energy Management Systems (HEMS)? What kinds of HEMS are you using? How are you tracking their effectiveness?
 - What strategies are programs using to integrate HEMS for greater energy savings?
 - Are there challenges to deploying HEMS and/or analyzing the data, and how can they be addressed?
 - Other questions/issues/lessons learned related to HEMS?
- 2 ■ Closing Poll

Better Buildings Residential Network

Better Buildings Residential Network: Connects energy efficiency programs and partners to share best practices and learn from one another to increase the number of homes that are energy efficient.

Membership: Open to organizations committed to accelerating the pace of home energy upgrades.

Benefits:

- Peer Exchange Calls 4x/month
- Tools, templates, & resources
- Recognition in media, materials
- Speaking opportunities
- Updates on latest trends
- Voluntary member initiatives
- Residential Program Solution Center guided tours

Commitment: Provide DOE with annual number of residential upgrades, and information about associated benefits.

For more information or to join, email bbresidentialnetwork@ee.doe.gov, or go to energy.gov/eere/bbrn and click Join

Peer Exchange Call Series

We hold one Peer Exchange call the first four Thursdays of each month from 1:00-2:30 pm ET

Calls cover a range of topics, including financing & revenue, data & evaluation, business partners, multifamily housing, and marketing & outreach for all stages of program development and implementation

Upcoming calls:

- May 18: [Innovation Station: The Latest Advances in Energy Efficiency Technology](#)
- May 25: No call
- June 1: No call
- June 8: [Expanding Your Reach: Creating Sustainable Energy Communities](#)
- June 15: [Home Improvement Catalyst: HVAC Installations That Deliver](#)
- June 22: [Car Talk: Electric Vehicles and Residential Energy Efficiency](#)
- June 29: [Community-Based Social Marketing: Using Social Science and Data to Change Behavior](#)

Send call topic ideas to peerexchange@rossstrategic.com

See the Better Buildings Residential Network Program [website](#) to register

Program Experience: Northeast Energy Efficiency Partnerships

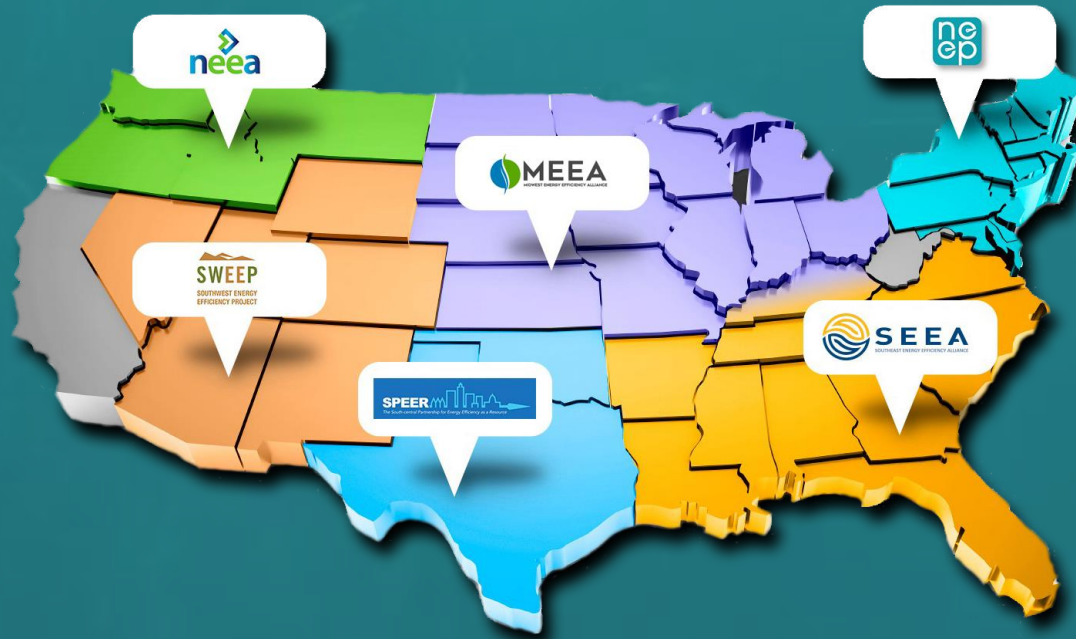


Let's Go! Overcoming Challenges and Exploiting Opportunities in HEMS

Claire Miziolek
Northeast Energy Efficiency Partnerships
Better Buildings Residential Network Peer Exchange
May 11th, 2017

About NEEP

A Regional Energy Efficiency Organization



One of six REEOs funded in-part by U.S. DOE
to support state and local efficiency policies and programs.

Northeast Energy Efficiency Partnerships



“Assisting the Northeast & Mid-Atlantic Region in Reducing Total Carbon Emissions 80% by 2050”

Mission

Accelerate energy efficiency as an essential part of demand-side solutions that enable a sustainable regional energy system

Vision

That the region embraces next generation energy efficiency as a core strategy to meet energy needs in a carbon-constrained world

Approach

Overcome barriers and transform markets through *Collaboration, Education, and Enterprise*



Energy What is the Smart Home?

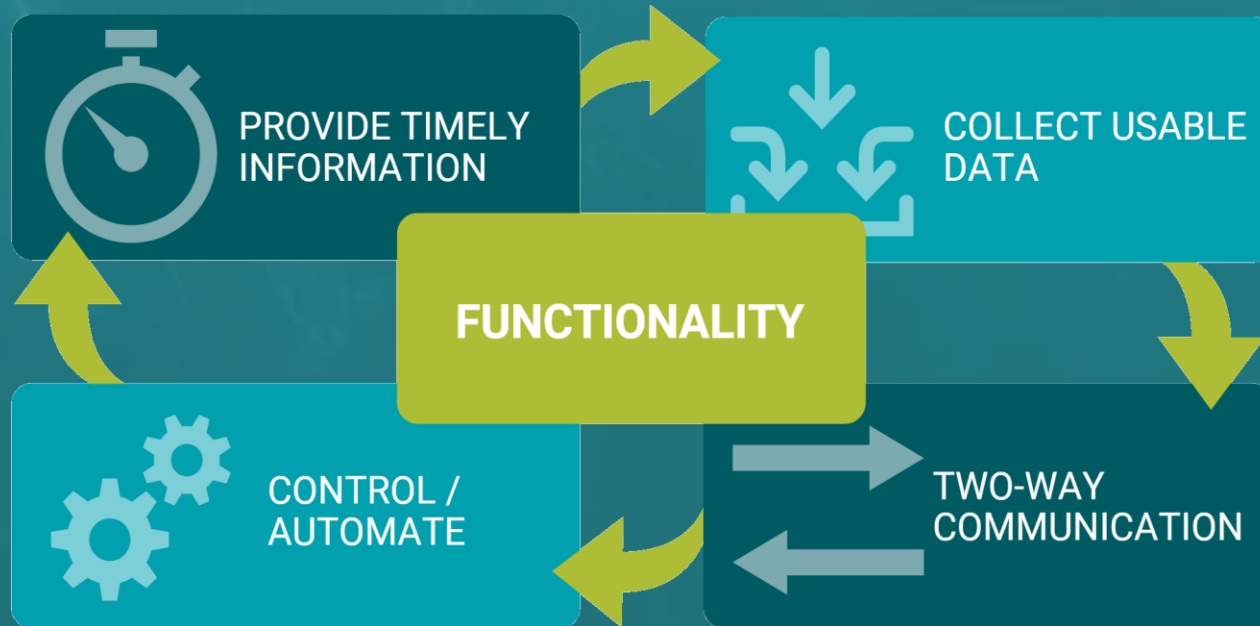


Home Energy Management Systems (HEMS):

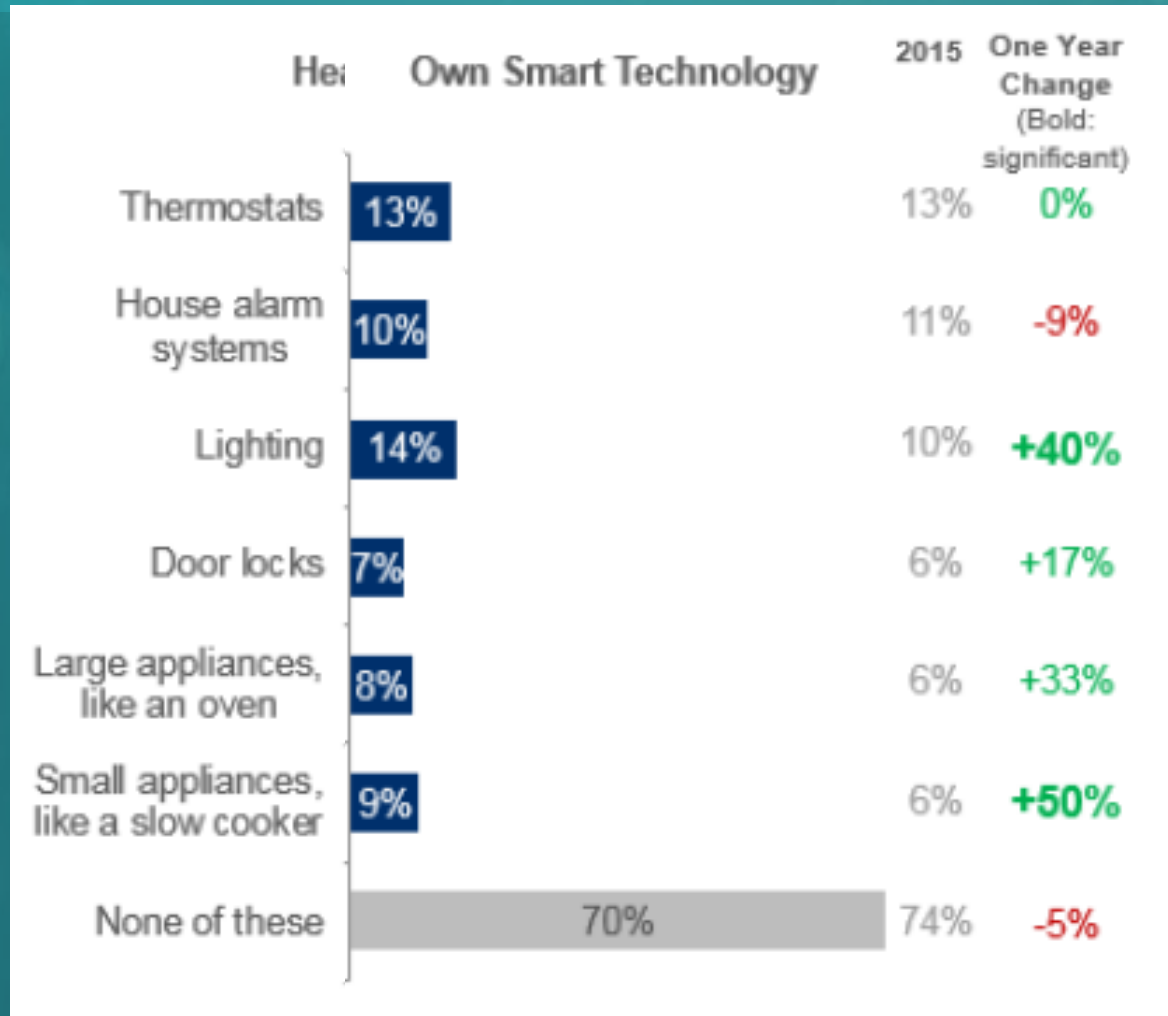
- Any hardware and/or software system that can:
 - monitor and provide feedback about a home's energy usage, **and/or**
 - enable advanced control of energy-using systems and devices in the home

Definitions: HEMS vs. Smart?

Going a step further, NEEP defines “smart” systems **monitor energy use and:**



Size and Scope of Smart Home Market



From: 2016 Sylvania Socket Survey

Our Interest

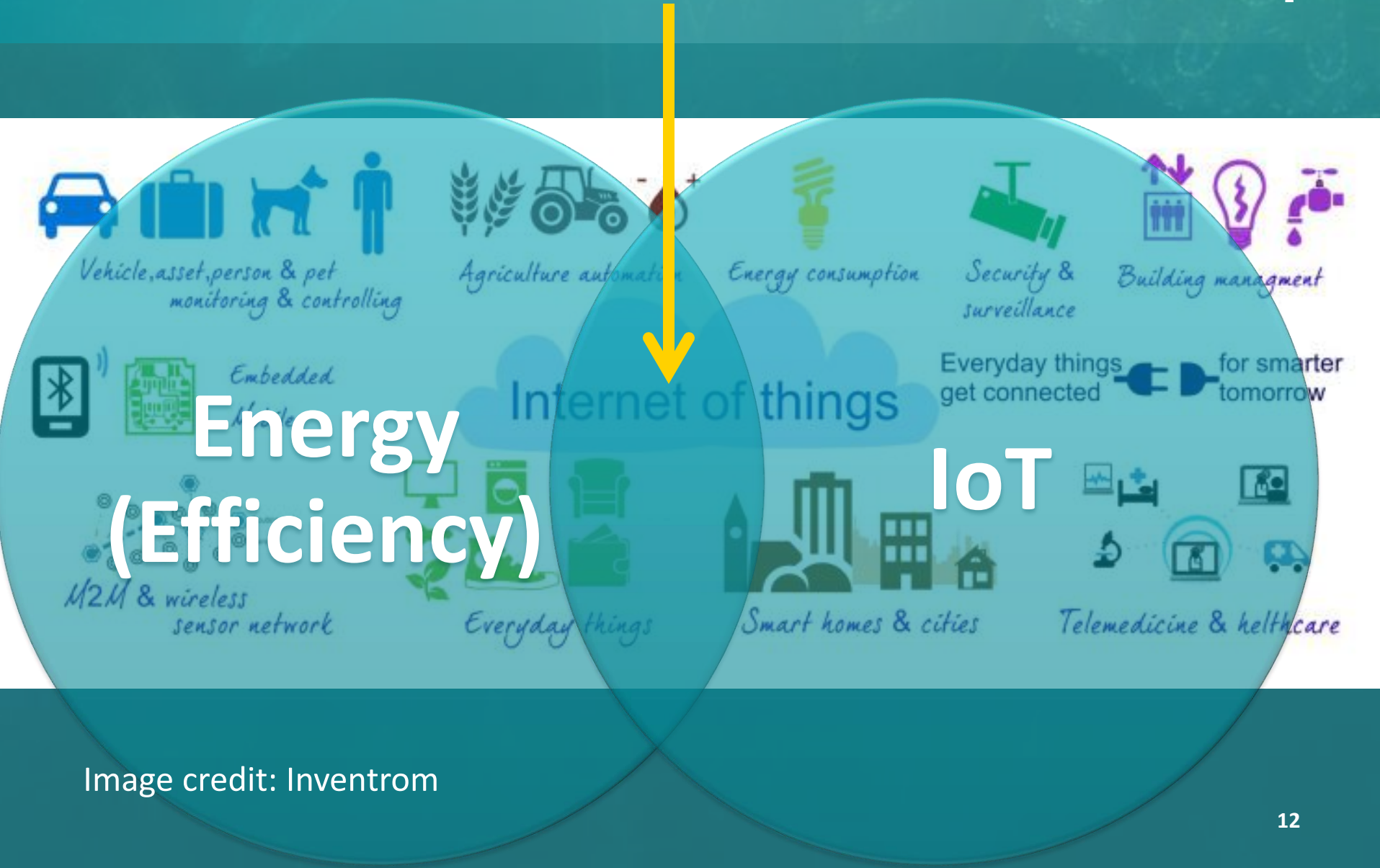
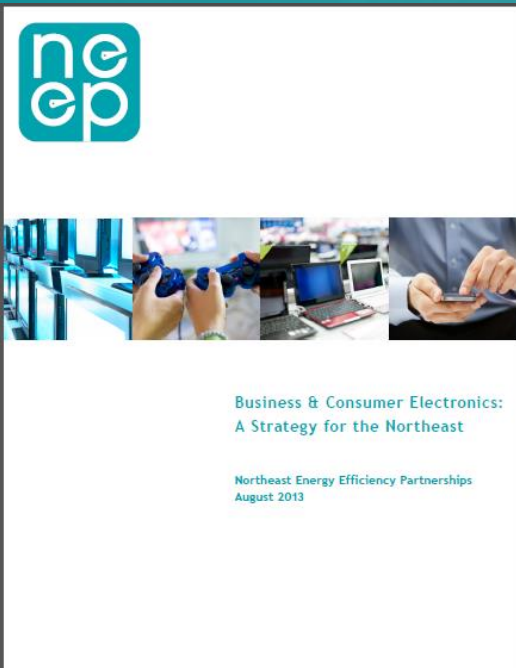


Image credit: Inventrom

NEEP's History in this Space

neep

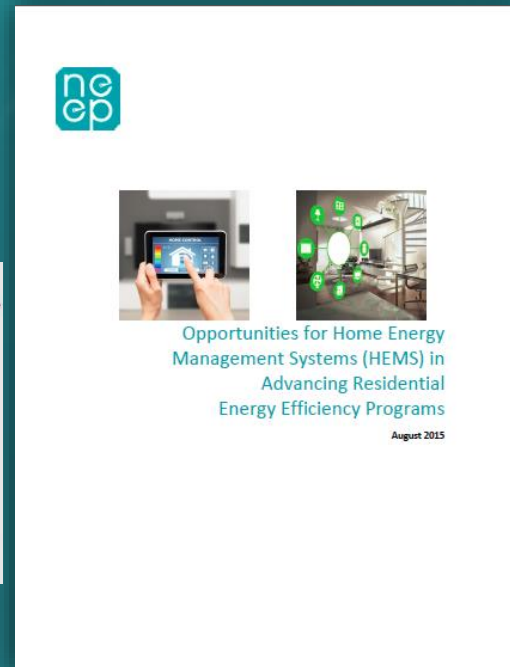
Read it!
Only 30
pages!



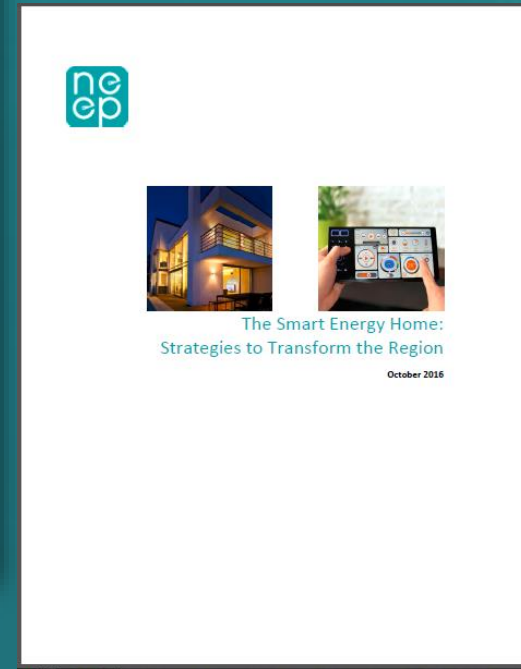
2013



2014



2015



2016

<http://neep.org/initiatives/high-efficiency-products/home-energy-management-systems>

<http://www.neep.org/business-consumer-electronics-strategy-northeast-2013>

<http://www.neep.org/smart-energy-home-strategies-transform-region>

Potential from the Smart Energy Home

Smart Product	Energy savings	Demand response	Load shifting	DER integration
Smart Thermostat				
Smart Water Heater				
Smart Appliances: Inflexible timing (refrigerators, stoves, ovens, small appliances)				
Smart Appliances: Flexible timing (clothes dryers, clothes washers, dishwashers)				
Smart TV				
Smart plug, outlet, or switch				
Smart Hub				
In-Home Display				
Energy Portal				
Smart Home Platform				
Smart Lighting				

2017 Priorities: Filling in the Holes

- Smart Thermostats: Huge opportunity, bringing them to scale
- Information Transparency: Online Products List
- Pushing Home Performance: major opportunity for deep impact
- Smart Water Heating: keeping the conversation moving



Newest Resource: Smart Thermostat Savings Guidance



- Step-by-step process for programs to claim localized savings from the field data collected by smart thermostats
 - Only 5 pages!
- Relies heavily on ENERGY STAR metric and certification
 - Luckily 7 products now on the list
- Document exists to help smart thermostat penetration grow from the few to the masses
- Resource is available online:
 - <http://www.neep.org/claiming-savings-smart-thermostats-guidance-document>



Claiming Savings from Smart Thermostats: Guidance Document

Northeast Energy Efficiency Partnerships, April 2017

The Opportunity: Significant Savings Potential

Efficiency programs, pilots, evaluations, and whitepapers throughout the country have documented the savings potential of smart thermostats,¹ ranging from lows of zero or even negative savings to upwards of 20 percent savings. The high-level summary of these reams of analysis is that, in many cases, there is energy to be saved through use of smart thermostats. Smart thermostats are now transitioning from a pilot measure to being included as a permanent and significant measure in rate-payer funded efficiency programs throughout the Northeast, Mid-Atlantic, and beyond. This guidance document provides background and instructions for program administrators (PAs) to use the data collected by the devices themselves to calculate energy savings for a program.

The Challenge: Control Technologies Aren't "Efficient"

Smart thermostats save energy by optimizing use of HVAC equipment; this occurs through a variety of means, such as occupancy detection and automation, advanced HVAC control to use less energy for equivalent comfort, or encouraging occupant behavior change. While as a category, smart thermostats has shown a yield of significant savings in many cases, the expected savings of an individual home depends on individual factors, such as:

- type, age, and configuration of the HVAC system;
- details of the specific house, such as floor plan and envelope thermal efficiency;
- climate and seasonal impacts; and/or
- occupant behavior and preferences, including occupancy schedule.

While any efficiency measure faces a degree of uncertainty when calculating savings (e.g. realized savings from a newly-purchased lightbulb depends on what type of bulb it replaces and how often that light it on), programs and evaluators find ways to manage the uncertainty through statistically rigorous studies. One example is socket saturation and hours of use studies for lighting. Smart thermostats, however, have both significant per-unit savings potential as well as a high level of uncertainty when compared to more traditional one-for-one efficient measures.

¹ NEEP Opportunities for HEMS in Advancing Residential Energy Efficiency Programs, <http://www.neep.org/opportunities-home-energy-management-systems-advancing-residential-energy-efficiency-programs> 2015 Table 4 and Appendix C, Fraunhofer's <https://www.cta.tech/CTA/media/Policy/Images/Energy-Savings-from-Five-Home-Automation-Technologies.pdf> table 2-2, <http://www.clearresult.com/insights/whitepapers/guide-to-smart-thermostats/> page 22.

Online Products List



- Up to 544 products in 14 categories
 - [Online list at neep.org](http://neep.org)

neep.org/initiatives/high-efficiency-products/home-energy-management-systems


responsibility for the products listed here or for the accuracy of the information presented.

[Download Spreadsheet](#)


HEMS Technology Assessment

HEMS Technology Assessment: Last updated 2/2017


Company	Product	Description	Product Category
1B First Build	Chill hub Smart refrigerator control	Chill Hub Smart refrigerator and smart refrigerator control hub	Smart Appliance
2Gig	GC-TBZ48 Z-Wave Programmable Thermostat		Smart Thermostat
3DFS	CurrentSEE	Real time energy monitoring with device level analytics for home and business	Load Monitor
Aclara	Behavioral Efficiency		Utility Facing Web Serv
Aclara	Customer Self Service		Utility Facing Web Serv



HEMS Can Enable Deep Savings, but Important Work Ahead for Programs & Policymakers



As Advanced Metering Grows, SEE Action Describes Potential for New Energy Savings



[View all blog posts](#)

RESOURCES

2016 Northeast Electronics Incentive Summary

Establishing Common Understanding for HEMS in

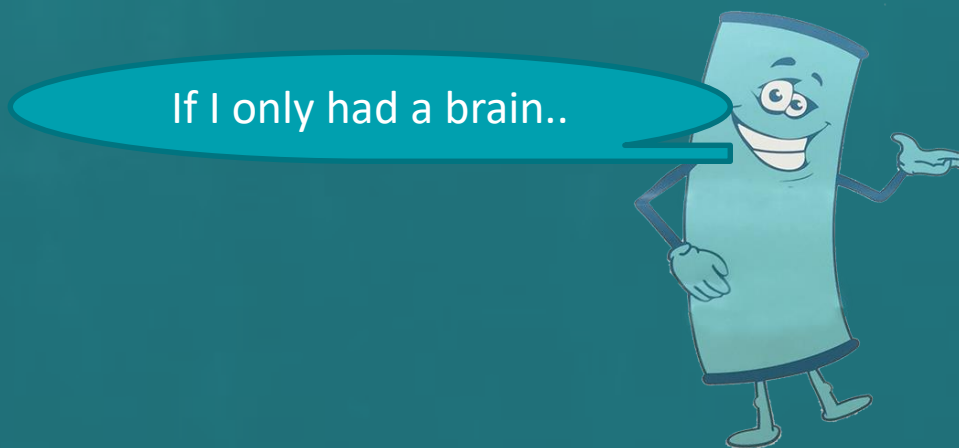
“HEMS in Home Performance” Resources



- Concept Briefs (working titles)
 - *Using the User Interface to Drive Retrofits!*
 - *A Contractor’s Guide to Leveraging the Smart Home*
- Marketing Guidance
 - What motivates a HEMS purchase?
 - What motivates a retrofit?
 - Who buys a smart devices? Who seeks out a retrofit?
 - Reach “across the aisle” to drive participation in both
- Contractor Trainings
 - Coming to a Northeast contractor group near you!

2017 Priorities: Filling in the Holes

- Smart thermostats: Huge opportunity, bringing them to scale
- Information exchange: Online Products List
- Home Performance: major opportunity for deep impact
- Smart Water Heating: keeping the conversation moving



Thank you!



Claire Miziolek

Northeast Energy Efficiency Partnerships (NEEP)

www.neep.org

Presentation Highlights: Northeast Energy Efficiency Partnerships (NEEP) (1 of 2)

- NEEP's goal is that more than **50% of homes in the Northeast and Mid-Atlantic will have at least 2 smart systems** (HVAC, water heating or plug loads) by 2030.
- **Home energy management systems (HEMS) are still in the early adopters phase**
 - Products are coming to market because they are “cool.”
 - Consumers aren't purchasing HEMS for energy management, they're purchasing them as an electronic feature for convenience, control from a distance, comfort, and security. Cost isn't their biggest motivator.
 - To expand the market, cost effectiveness is a factor for the next wave of HEMS consumers.
- NEEP found that **HVAC, water heating and plug loads proved to be components with the greatest potential** for demand response, load shifting and Distributed Energy Resources (DER) integration with energy resources.
 - Smart water heaters are cost effective, but “not as sexy.”
- Smart technologies can help push people toward traditional upgrades; there's more potential in an app user interface to drive retrofits than an energy bill.

Presentation Highlights: Northeast Energy Efficiency Partnerships (NEEP) (2 of 2)

- **NEEP's focus for increasing uptake of smart technologies in 2017:**
 - Leveraging people's interest around HEMS to inform about other basic necessary upgrades
 - A guide for contractors and contractor training to promote smart technologies when undertaking other home upgrades
 - Marketing guidance to reach multiple audiences and achieve broader participation and uptake of HEMS
 - Further promoting smart water heaters as an opportunity for significant energy savings

Program Experience: Pacific Gas & Electric Company

Connected Home Strategy

May 11, 2017
Kari Binley-EE Product Innovation



Together, Building
a Better California

Imagine...



What if there are multiple houses on a single feeder doing the same thing?

- ❖ Lights dim depending on incoming natural light-Optimization for **EE**
- ❖ Customer sets budget (**Rate** engine) and house optimizes end uses to achieve budget
- ❖ Appliances run according to utility's requested load shape (Flatten **Load**)
- ❖ Customer creates preference for house to automatically respond to **DR**
- ❖ Technology recognizes EV charging and suggests **EV rate**.

What it COULD mean for Utilities

Create opportunities for 3rd party providers to deliver grid and customer benefits by enabling the market to aggregate multiple energy benefits through a single interaction with the customer.



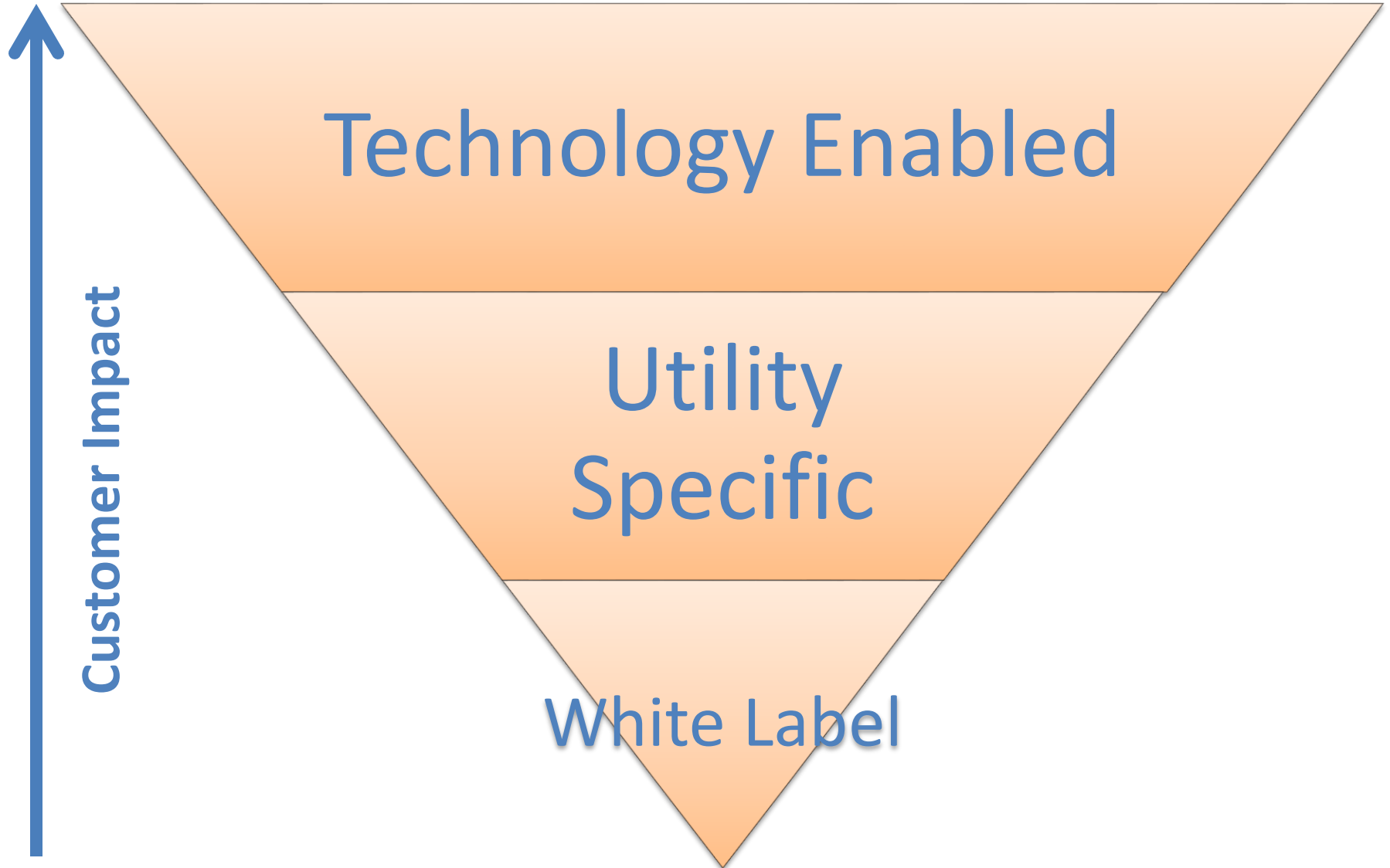
- Enable New Functionali
- New Business Models
- Seamless Integration

BUSINESS



- Request Load
- Provide load shape demand

UTILITY



Presentation Highlights: Pacific Gas and Electric Company (1 of 2)

- **HEMS are “a unicorn for utilities.”**
 - Customers have more control over their energy consumption and bill tolerance.
 - Customers can participate in energy efficiency programs with little effort.
 - Utilities can control the load and help customers participate in demand response to flatten the load curve.
- **More is better:** Multiple HEMS will produce significant energy savings, which can have a positive impact on the grid and allow utilities to demonstrate greater value for customers:
 - Utilities need to come together to think about how they can make HEMS more accessible to customers.
 - Currently, some utility partners understand the value of HEMS, while others might still see it as a low priority from a customer value perspective.

Presentation Highlights: Pacific Gas and Electric Company (2 of 2)

- **Getting all utilities on board to work towards a cohesive market strategy** around smart home technology will allow utilities to weigh in on future capabilities, and extract the benefits of HEMS for their businesses.
- **Utilities love data, but a million data points will not provide the “big picture” insights.**
 - **Data needs to be analyzed in a more intuitive way:** before considering any potential privacy concerns, utilities need to understand what types of data would be useful in their analyses and for targeted offerings.
 - **PG&E is currently working on a market characterization study** around cloud providers and device manufacturers to understand what kind of data is necessary to optimize home performance.

Program Experience: Fraunhofer Center for Sustainable Energy Systems

Using Communicating Thermostats to Automate, Customize, and Scale Home Energy Assessments

Better Buildings Webinar

May 11, 2017

Kurt Roth, Ph.D.



Project Motivation

- Space heating is the largest end use for homes in cold/very-cold climates
- Homes with poor/no insulation or inefficient heating systems have higher heating energy consumption
 - ~20-25 percent of homes
- Wall and/or attic insulation, air sealing, and HVAC system upgrades can significantly reduce space heating energy consumption
- Programs face high customer acquisition costs
- Slow market uptake of these proven measures



Sources: DeMark Home Ontario. S. Edwards-Musa, Eversource Energy.

Project Objectives and Benefits

Project Objective: Develop a tool for utility energy efficiency (EE) programs that analyzes communicating thermostat (CT) data to automatically identify and quantify the benefit of targeted and customized retrofit opportunities

Customer and Utility Benefits:

- Increase the uptake of home energy assessments
- Increase deployment rate of the target energy conservation measures (ECMs)
- Decrease the cost of EE programs via targeting
- Reduce retrofit performance risks using home-level remote EM&V
- Increase customer engagement
- Increase the value proposition for CTs – projected ~25MM installed circa 2019

Ultimate Vision: CTs deployed in most homes identify high-impact opportunities to reduce HVAC energy consumption *and* ensure retrofit performance

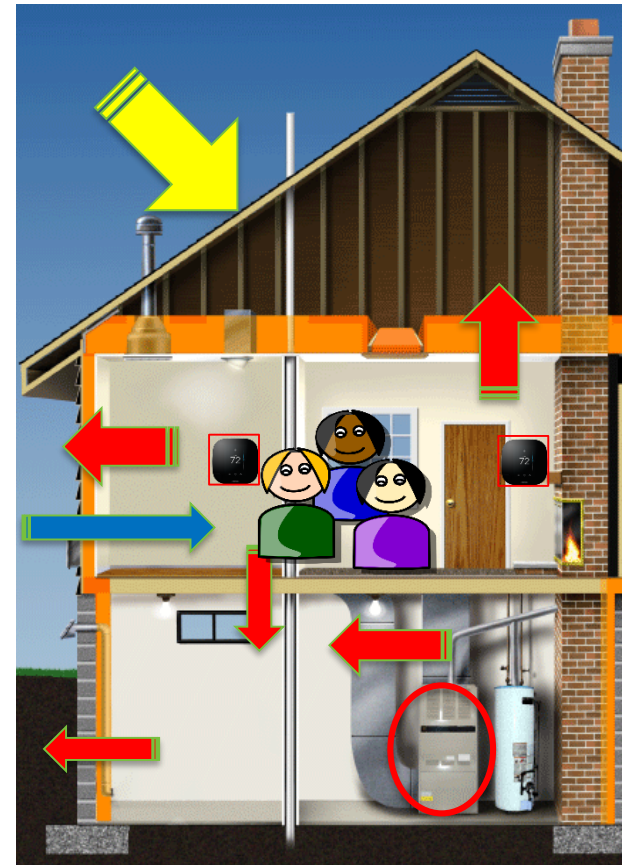
Source: ACHRNews (2015).

CTs provide insight into a home's thermal response.

What the thermostat reports:

Date	Time	System Setting	System Mode	Calendar Event	Program Mode	Cool Set Temp (F)	Heat Set Temp (F)	Current Temp (F)	Current Humidity (%RH)	Outdoor Temp (F)	Wind Speed (km/h)	Cool Stage 1 (sec)	Heat Stage 1 (sec)	Fan (sec)
3/29/2016	0:00:00	auto	heatOff		Sleep	82	63	70	39	43.8	16	0	0	0
3/29/2016	0:05:00	auto	heatOff		Sleep	82	63	69.9	39	43.8	16	0	0	0
3/29/2016	0:10:00	auto	heatOff		Sleep	82	63	69.8	40	43.8	16	0	0	0
3/29/2016	0:15:00	auto	heatOff		Sleep	82	63	69.8	40	43.8	16	0	0	0
3/29/2016	0:20:00	auto	heatOff		Sleep	82	63	69.8	40	43.8	16	0	0	0
3/29/2016	0:25:00	auto	heatOff		Sleep	82	63	69.7	40	43.8	16	0	0	0
3/29/2016	0:30:00	auto	heatOff		Sleep	82	63	69.6	40	42.7	22	0	0	0
3/29/2016	0:35:00	auto	heatOff		Sleep	82	63	69.4	40	42.7	22	0	0	0
3/29/2016	0:40:00	auto	heatOff		Sleep	82	63	69.3	40	42.7	22	0	0	0
3/29/2016	0:45:00	auto	heatOff		Sleep	82	63	69.1	40	42.7	22	0	0	0
3/29/2016	0:50:00	auto	heatOff		Sleep	82	63	69	40	42.7	22	0	0	0
3/29/2016	0:55:00	auto	heatOff		Sleep	82	63	68.9	40	42.7	22	0	0	0
3/29/2016	1:00:00	auto	heatOff		Sleep	82	63	68.9	40	42.7	22	0	0	0
3/29/2016	1:05:00	auto	heatOff		Sleep	82	63	68.8	40	42.7	22	0	0	0
3/29/2016	1:10:00	auto	heatOff		Sleep	82	63	68.7	40	42.7	22	0	0	0
3/29/2016	1:15:00	auto	heatOff		Sleep	82	63	68.6	40	42.7	22	0	0	0
3/29/2016	1:20:00	auto	heatOff		Sleep	82	63	68.6	40	42.7	22	0	0	0
3/29/2016	1:25:00	auto	heatOff		Sleep	82	63	68.5	40	42.7	22	0	0	0
3/29/2016	1:30:00	auto	heatOff		Sleep	82	63	68.5	40	42.6	19	0	0	0
3/29/2016	1:35:00	auto	heatOff		Sleep	82	63	68.4	40	42.6	19	0	0	0
3/29/2016	1:40:00	auto	heatOff		Sleep	82	63	68.4	40	42.6	19	0	0	0
3/29/2016	1:45:00	auto	heatOff		Sleep	82	63	68.3	40	42.6	19	0	0	0
3/29/2016	1:50:00	auto	heatOff		Sleep	82	63	68.2	40	42.6	19	0	0	0
3/29/2016	1:55:00	auto	heatOff		Sleep	82	63	68.2	41	42.6	19	0	0	0
3/29/2016	2:00:00	auto	heatOff		Sleep	82	63	68.1	41	42.6	19	0	0	0

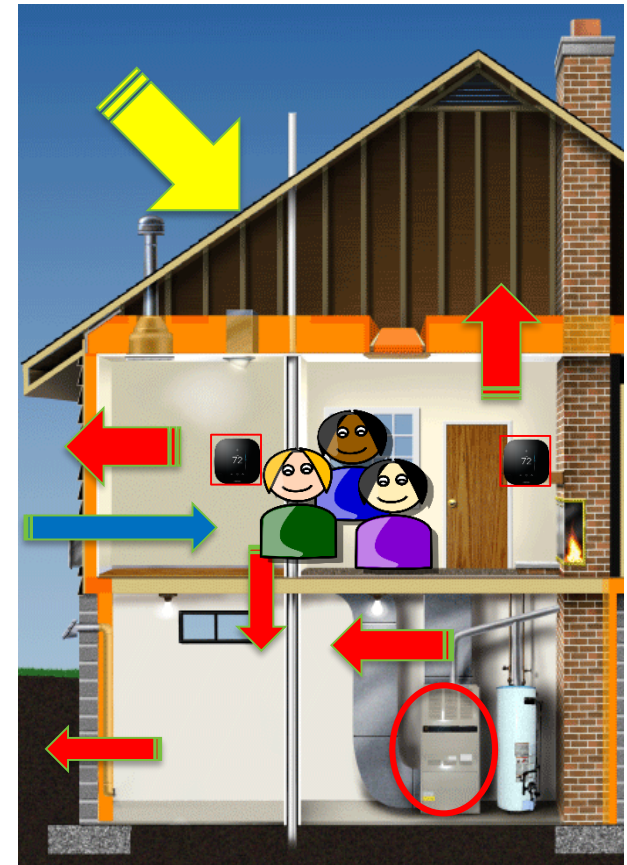
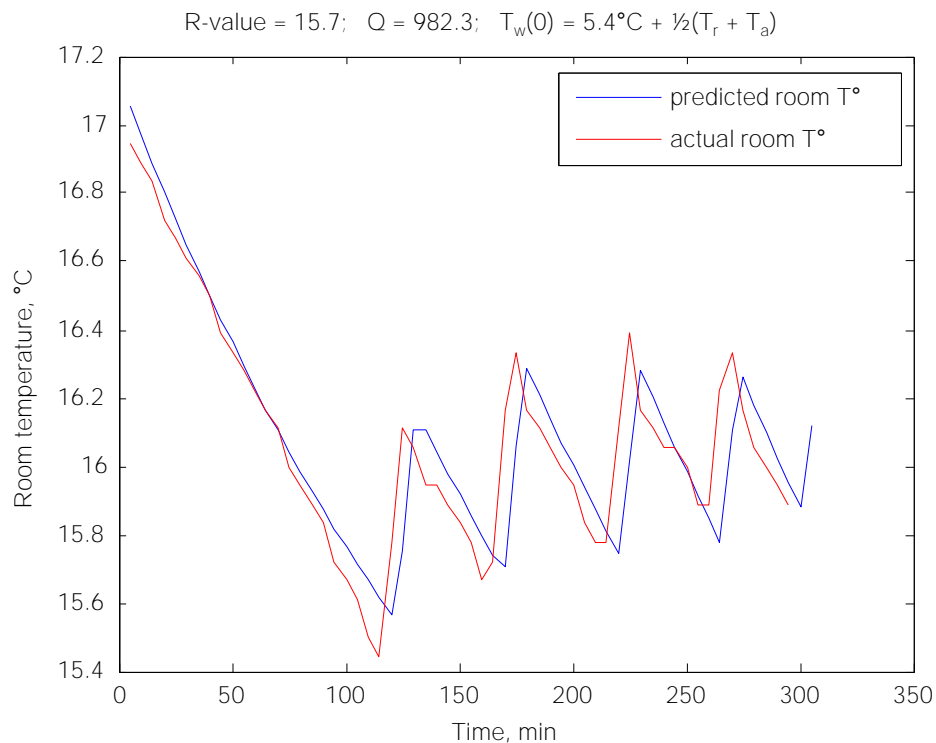
What is actually happening:



Sources: DOE, Ecobee, Fraunhofer CSE, Wikimedia Commons.

A home's thermal response reflects its characteristics.

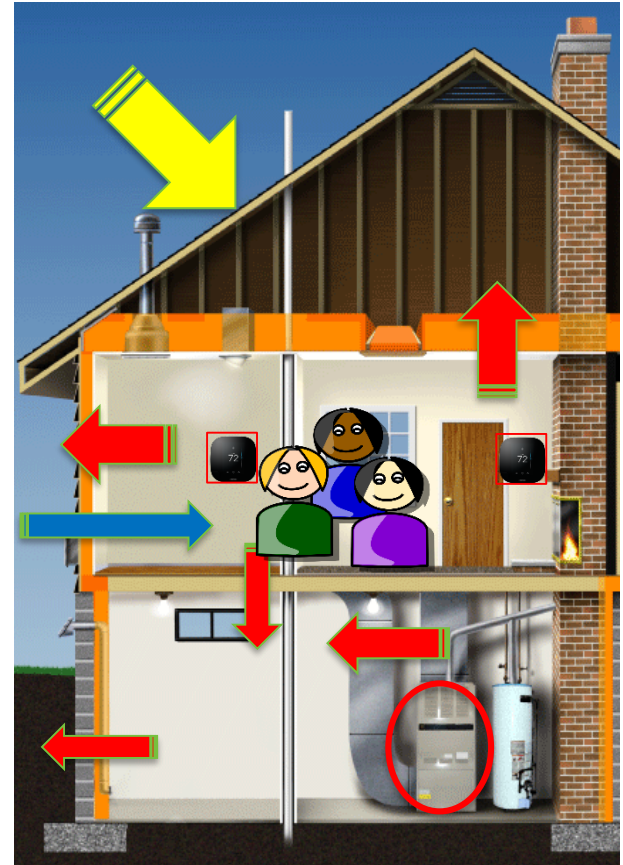
Example of building parameter estimation by curve fitting using CT data from a single night



Sources: DOE, Ecobee, Fraunhofer CSE, Wikimedia Commons.

Project Approach: Overview

Analyze *real-world CT, interval, and home energy audit data* to successively refine home thermal response models to *accurately estimate home physical parameters* that correspond to the target ECMs *in increasingly complex situations*.



Sources: DOE, Ecobee, Wikimedia Commons.

Project Impact

Basic ECMs identified have significant energy savings potentials:

- Condensing Furnace or Boiler Retrofit: \$165/year (avg. Massachusetts home)
- Attic and Wall Insulation: \$165/year
- Air Sealing: \$50-165/year
- *National Impact*: Consumer savings of **\$4-5 billion per year**

Further savings from space cooling savings and deeper retrofits

Sources: DOE BTO (2012), Massachusetts TRM (2013), DOE/EIA (2017), DOE Building America (2010).

Conclusions and Future Plans

Conclusions – Leverage data from HEMS technology to:

- Identify high-impact retrofits for largest residential end use
- Create customized retrofit offerings for individual homes to increase demand
- Validate retrofit performance
- Scale using through leading utility EE programs

Thanks to:

- Project Team: Michael Zeifman (co-PI), Bryan Urban, Amine Lazrak
- Utility Partners: Eversource, Holyoke Gas & Electric, National Grid
- DOE Building America Program

Learn More:

- “Communicating Thermostats as a Tool for Home Energy Performance Assessment” – *Proc. 2017 IEEE Intl. Conf. on Consumer Electronics (ICCE)*. Jan.
 - See: <https://edas.info/p22259> .



Bringing Housing Innovations to Market

BUILDING AMERICA
SOLUTION CENTER
BASC.ENERGY.GOV

Building best practices
at your fingertips.



Presentation Highlights: Fraunhofer Center for Sustainable Energy Systems (1 of 2)

- By leveraging connected thermostats and home audits, Fraunhofer tries to identify **residential retrofit opportunities related to space heating, which is the largest end use in homes**, particularly in cold climates.
 - Estimates show that **20%-25% of U.S. homes could improve their energy savings** by upgrading their wall insulation and/or HVAC systems.
 - If this piloted approach was applied nationally to the 20-25% homes, savings would equate to \$4-5 billion per year.
- **Granular data from connected thermostats is a huge opportunity**; allows for a better identification of potential energy savings opportunities, customization of offerings and, ultimately, higher uptake of retrofits.

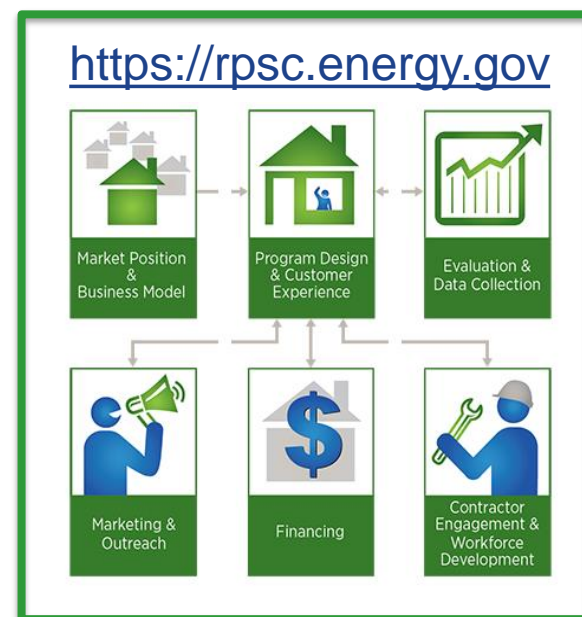
Presentation Highlights: Fraunhofer Center for Sustainable Energy Systems (2 of 2)

- One of the key challenges in capturing a home's trend in energy data is **understanding the many factors that may influence energy savings** and isolating human variables from issues in the home.
- **Fraunhofer is scaling their approach:**
 - **Developing a best practices guide** in collaboration with program administrators to outline how this pilot approach could be effectively integrated into energy efficiency programs.
 - **Producing a data specifications report** that utilities can use to take advantage of and create new values from available data.

Related Resources in the Residential Program Solution Center

Explore resources related to opportunities and challenges of home energy management systems:

- Learn about opportunities for home energy management systems in advancing residential energy efficiency programs in this [NEEP report](#).
- Read an overview of existing and future residential use cases for connected thermostats in this [DOE report](#).
- Explore this [DOE webpage](#) for an introduction to how home energy management systems can fit into broader smart home & grid modernization efforts.



- Check out the latest [Proven Practices](#) post on [Offering a Range of Upgrade Paths](#).
- The Solution Center is continually updated to support residential energy efficiency programs—[member ideas are wanted](#)!

2017 Better Buildings Summit: May 15 – 17, 2017!



Be sure to [register today](#) for the 2017 [Better Buildings Summit!](#)



Spread the word:

[#BBSummit17](#) registration is right around the corner. Get ready to learn about expert [#EnergyEfficiency](#) enhancements <http://bit.ly/2iZCMsB>

GET SOCIAL WITH US



Stay engaged and connected with the Better Buildings Residential Network and our partners from the residential and multifamily sectors!

Follow us to plug into the latest Better Buildings news and updates!

Share with us your top stories on how your organization is accelerating energy savings through efficiency upgrades, strategies, and investment!



[Better Buildings Twitter](#) with [#BBResNet](#)



[Better Buildings LinkedIn](#)

We can't wait to hear from you!

U.S. Department of Energy Solar Decathlon



Oct 5-15, 2017 DENVER

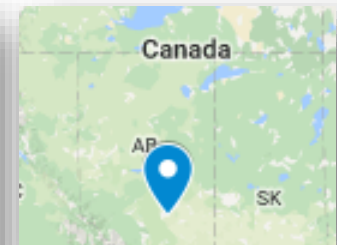
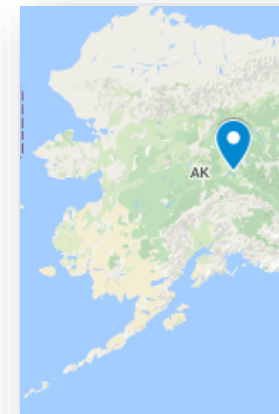
- 13 Collegiate teams compete in 10 contests
 - New for 2017: Innovation and Water
- Winning team best blends technology, market potential, design excellence with smart energy solar production and maximum energy and water efficiency.
- Large free public event – showcases best of clean energy technology
- Denver location: new, mixed use smart community on transit line near Denver International Airport
- Sponsorship Opportunities
- Info: www.SolarDecathlon.Gov



Solar Decathlon 2015 Teams in Irvine, Calif.
Credit: Thomas Kelsey/U.S. Department of Energy Solar Decathlon

Addenda: Attendee Information and Poll Results

Call Attendee Locations



Call Attendees: Network Members

- AppleBlossom Energy Inc.
- Cold Climate Housing Research Center
- City and County of Denver
- City of Fort Collins
- CLEAResult
- Connecticut Green Bank
- Davis Energy Group
- City of Cleveland
- Efficiency Maine
- Greater Cincinnati Energy Alliance
- Honeywell International, Inc.
- International Center for Appropriate and Sustainable Technology (ICAST)
- La Plata Electric Association
- Northeast Energy Efficiency Partnerships (NEEP)
- New York State Energy Research & Development Authority (NYSERDA)
- TRC Energy Services
- Wisconsin Energy Conservation Corporation (WECC)
- Seventhwave

Call Attendees: Non-Members (1 of 3)

- Authority Health (Detroit Wayne County)
- Bank of Montreal
- Building Performance Contractors Association
- California Public Utilities Commission
- Community Action Agency of Butte County, Inc.
- Consortium for Energy Efficiency (CEE)
- Clallam County
- Clark County
- Community Housing Partners
- Conservation Consultants Inc.
- Donald J. Caunter Architect
- E Source
- Energy Information Administration
- Electric Power Research Institute (EPRI)
- Emerson Electric Company
- Enbridge Gas Distribution Inc.
- Energy Analytics
- Energy Solutions Professionals
- EnergyWize
- Fekete Architecture

Call Attendees: Non-Members (2 of 3)

- Franklin Energy Services, LLC
- Fraunhofer Center for Sustainable Energy Systems
- GE Lighting
- GoodCents
- Hearth Patio & Barbecue Association
- HILCO Electric Cooperative Inc.
- Home Office Training & Technology
- Home Performance Coalition
- Huntington Bank
- ICF
- Johnson Controls
- Local Government Commission
- Lockheed Martin Energy
- Madison Gas and Electric Company
- Massachusetts Department of Energy Resources
- NANA Regional Corporation
- Navitas Partners, Inc.
- Nest Labs
- New Hampshire Electric Cooperative

Call Attendees: Non-Members (3 of 3)

- Passive House
- Performance Systems Development
- Pacific Gas & Electric Company
- s2e Technologies Inc.
- Seattle City Light
- See Change Institute
- Sim2
- Snohomish County
- Solar Habitats, LLC
- State of Hawaii
- State of Florida
- Stewards of Affordable Housing for Future (SAHF)
- Southwest Energy Efficiency Project (SWEET)
- Therma-Stor LLC
- Third Rail Technologies
- Transition Living
- TRJ Construction Inc.
- University of Kansas

Opening Poll #1

- Which of the following best describes your organization's experience with Home Energy Management Systems?
 - Some experience/familiarity – **41%**
 - Limited experience/familiarity – **23%**
 - No experience/familiarity – **18%**
 - Very experienced/familiar – **16%**
 - Not applicable – **2%**

Closing Poll

- After today's call, what will you do?
 - Seek out additional information on one or more of the ideas – **80%**
 - Make no changes to your current approach – **12%**
 - Consider implementing one or more of the ideas discussed – **8%**
 - Other (please explain) – **0%**